

CLAIMS

1. A method to introduce an IP-subscriber connection in correspondence to an existing TDM connection between a subscriber A on an A-side of the TDM connection and a subscriber B on a B-side of the TDM connection, comprising the steps of:
 - 10 sending a set up signal including IP connection information and a caller ID of the subscriber A to the B-side over the existing TDM connection;
 - 15 inviting the A-side to set up an IP connection from the B-side including IP connection information and a caller ID of the subscriber B; and
 - 20 establishing the IP-subscriber connection based on the IP connection information and caller ID from the subscriber A and the subscriber B.
2. The method according to claim 1, further comprising the step of transmitting an IP connect signal from the subscriber A to a call agent on the B side.
- 25 3. The method according to claim 2, further comprising the step of sending an IP connect signal from a B-side call agent to an A-side call agent.
- 30 4. The method according to claim 3, completing the IP-subscriber connection when an A-side call agent sends an IP connect signal to the subscriber A.
- 35 5. The method according to claim 1, further comprising the step of releasing the TDM connection while the IP-subscriber connection continues.

6. The method according to claim 1, further comprising the step of coupling a TDM call service through the IP-subscriber connection thereby establishing a TDM call service on the IP-subscriber connection.

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7. A method to establish an IP-subscriber connection using an IP-concentrator and the routing fabric of an existing TDM switch between a subscriber A on an A-side of the TDM connection and a subscriber B on a B-side of the TDM connection, comprising the steps of:

15 translating an IP-call request from the subscriber A to a corresponding TDM call request; and

injecting the translated IP-call request into the TDM-switch by the IP-concentrator; and

20 establishing the IP-subscriber connection in response to the IP-call request injected into the TDM-switch.

8. The method according to claim 7, further comprising the step of injecting an IP-call invite signal from the B-side 25 into a corresponding TDM-switch on the B-side.

9. The method according to claim 8, further comprising the step of transmitting the IP-call invite signal from the B-side TDM switch to the A-side via a corresponding TDM 30 connection.

10. The method according to claim 7, further comprising the step of releasing a corresponding TDM connection of the IP-subscriber connection.

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11. The method according to claim 7, further comprising the step of coupling a TDM call service through the IP-subscriber

connection thereby establishing a TDM call service on the IP-subscriber connection.

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12. An apparatus to introduce an IP-subscriber connection in an existing TDM connection between a subscriber A on an A-side of the TDM connection and a subscriber B on a B-side of the TDM connection, comprising:

a TDM switch on the A-side coupled to the subscriber A;
15 an IP-concentrator A coupled to the TDM switch on the A-side; and

wherein, the TDM switch on the A-side forwards IP call information of the subscriber A to the B-side and, based on 20 this information, the IP-concentrator A establishes the IP-subscriber connection.

13. The apparatus according to claim 12, further comprising:

25 a TDM switch on the B-side coupled to the subscriber B, wherein the TDM switch on the A-side forms the TDM connection to the TDM switch on the B-side; and

an IP-concentrator B coupled to the TDM switch on the B-side,
30 wherein the IP-concentrator B receives the IP call information via the TDM switch on the B-side and forwards IP call information of the subscriber B to the A-side that is used to establish the IP-subscriber connection.

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14. The apparatus according to claim 12 wherein the subscriber B is authenticated by the A-IPCON 102 to determine the IP nature of the subscriber B.
- 5 15. The apparatus of claim 12, wherein the IP-concentrator A interfaces the TDM switch in the A-side by an TR303.
16. The apparatus of claim 12, wherein the IP-concentrator A interfaces the TDM switch in the A-side by an ISDN interface.
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17. A method for providing TDM call services on an IP-subscriber connection that corresponds to a previous TDM connection between a subscriber A on an A-side and a subscriber B on a B-side, at least the A-side including an IP-concentrator, the method comprising the steps of:
- 20 setting a trigger that causes a TDM switch on the A-side to pass control of an incoming call to the IP concentrator on the A-side; and
- instructing the TDM switch to resume call processing of the incoming call when the trigger is triggered.
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18. The method according to claim 17, wherein when the IP-concentrator finds its subscriber involved in an IP-call, then further comprising the step of the IP-concentrator reestablishing the TDM call.
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19. The method according to claim 18, further comprising the step of verifying which IP-concentrator originated the call.
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20. The method according to claim 18, instructing a TDM switch of the TDM connection via a TCAP message to resume the incoming call processing.

21. The method according to claim 17, wherein when the IP-concentrator finds its subscriber idle then further comprising the step of instructing by the IP-concentrator a TDM switch corresponding to the TDM connection to resume
5 incoming call processing.
22. The method according to claim 17, wherein the trigger is an advanced intelligent network trigger.
- 10 23. The method according to claim 17, further comprising the step of providing a TDM call feature for the IP-subscriber connection via the re-established TDM connection.
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24. A method for providing TDM call services on an IP-subscriber connection that corresponds to a previous TDM connection between a subscriber A on an A-side and a subscriber B on a B-side, at least the A-side including an
20 IP-concentrator, the method comprising the steps of:
activating by the IP-concentrator a Call Forwarding feature for a particular subscriber when the IP-concentrator establishes an IP call for the particular subscriber; and
25 forwarding any incoming call for the particular subscriber to the IP-concentrator.
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26. The method according to claim 24, further comprising the step of providing information of the particular subscriber service-subscription to the IP-concentrator.
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27. A system for providing a TDM call service to an IP-subscriber connection corresponding to a previously placed
35 TDM call, comprising:

an IP-concentrator coupled to a particular subscriber for establishing the IP-subscriber connection to another subscriber;

- 5 a TDM switch for coupling the particular subscriber via a TDM connection to the said another subscriber;

a trigger that triggers the TDM switch to point an incoming TDM call service to the IP-concentrator.

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27. The system according to claim 26, wherein the IP concentrator includes an SCP for controlling incoming call traffic.

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28. The system according to claim 26, further comprising a remote IP-concentrator coupled to said another subscriber that handles IP trafficking regarding said another subscriber.

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29. The system according to claim 26, further comprising another TDM switch coupled to said another subscriber that handles TDM trafficking regarding said another subscriber.

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